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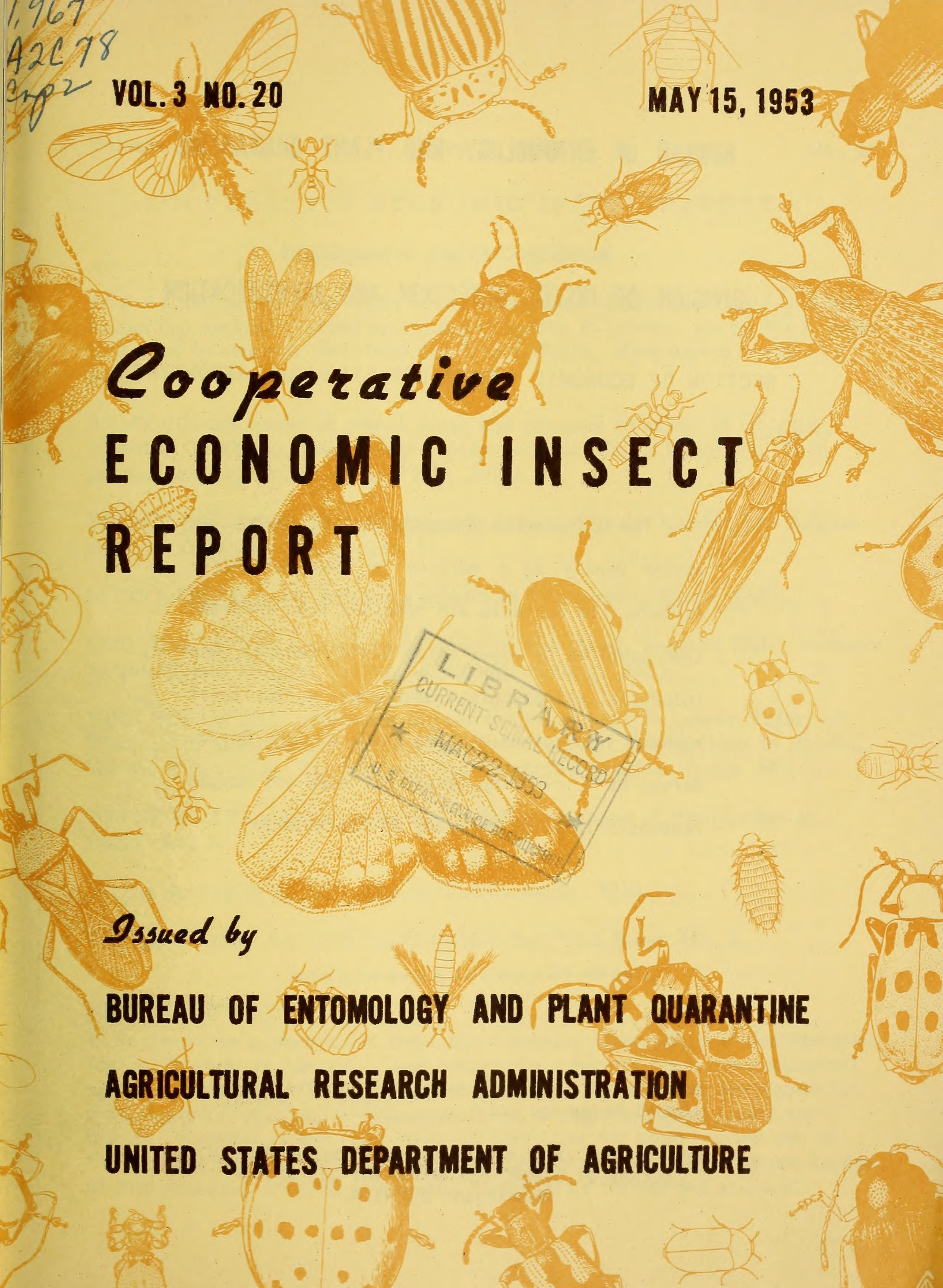

Cooperative
ECONOMIC INSECT REPORT

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U.S. DEPARTMENT OF AGRICULTURE

Issued by

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

AGRICULTURAL RESEARCH ADMINISTRATION

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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

DIVISION OF INSECT DETECTION AND IDENTIFICATION

SECTION OF ECONOMIC INSECT DETECTION AND REPORTING

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Bureau serves as a clearing house and does not assume responsibility for accuracy of the material.

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Section of Economic Insect Detection and Reporting
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Volume 3 May 15, 1953 No. 20

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

PEA APHID active over wide area, damage to alfalfa continues in some states but natural control becoming effective in others. (page 341). Infesting peas in eastern Maryland and Walla Walla, Washington area. (page 351).

ARMYWORMS heavy in small grain and grasses in areas of Georgia, Illinois, Oklahoma, and Texas. Also reported from Missouri, Tennessee and Maryland. (pages 343, 360).

BROWN WHEAT MITE damaging wheat in northwest Kansas and Adams County, Colorado. (page 344).

SPITTLEBUGS found infesting alfalfa in Tennessee. (page 360).

CODLING MOTHS appearing in western Maryland, eastern Ohio, western Kentucky and Yakima Valley, Washington. (page 346).

PINK BOLLWORM continues lighter than last year in Lower Valley of Texas, but preliminary inspections show heavier infestations in Brooks, Duval, Jim Wells, Kleberg and San Patricio Counties. (page 358).

GYPSY MOTH hatching underway in infested areas of the Northeast. (page 355).

Spring survey of APHID eggs in Maine. (page 353).

Survey methods for WHITE-FRINGED BEETLE (page 361).

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SURVEY METHODS

In response to a suggestion from the Advisory Committee of the Entomological Society of America, and numerous requests from entomological workers, the Survey Methods appearing in the Cooperative Economic Insect Report from time to time have been brought together under one cover. Because of the cost involved they have not been mailed out on the regular mailing list. If you would like to receive one or more copies of this reissue, drop us a note and they will be forwarded at once.

WEATHER OF THE WEEK ENDING May 12, 1953

Cold weather in the far West, too much rain east of the Mississippi, destructive storms in the Great Plains, continued drought in parts of the lower Great Plains and Southwest, and record-breaking low temperatures and snow in the north-central interior were the main weather features of the week.

Temperatures in the far West were about seasonal during the first two days, but fell to much below normal levels after the passage of a cold front on the 7th and 8th. During the remainder of the week freezing occurred over large areas with minima of 12 degrees and 13 degrees at Winnemucca and Ely, Nev. respectively on the 10th. Weekly averages were as much as 10 degrees below normal in the Utah-Nevada area where some losses of new shorn sheep and newly born lambs occurred. The cold weather retarded growth in most of the area west of the Continental Divide, and some fruit in western Colorado, and some fruit and row crops in south-central Idaho were damaged.

The low pressure trough and cold front that was over the Rocky Mountains on the 8th had moved over the Great Plains on the 9th, and moving slowly eastward, owing to high pressure over the eastern portions of Canada and the United States, reached the Appalachians by the end of the period. With clear skies and southerly winds in advance of the cold front, temperatures rose to near record levels in central areas on the 7th, 8th, 9th and 10th. International Falls, Minn. recorded 90 degrees on the 7th and 89 degrees on the 8th.

During the passage of the cold front on the 9th and 10th, moderate to locally heavy rains and destructive winds and tornadoes occurred in the northern Great Plains and upper Mississippi Valley. Eight persons were reported killed in Minnesota and one in Wisconsin. In northern Minnesota the heavy rains checked several forest fires between International Falls and Bemidji and ended the extended dry spell in the northern portion of the State.

In the Southwest and western portions of the central and lower Great Plains where rainfall was very light, strong winds further depleted soil moisture. Rain is urgently needed in central and southwestern Kansas, western Oklahoma, northwestern and extreme southern Texas, eastern New Mexico, Wyoming and southern Colorado. Strong winds caused dust storms and some crop damage in Wyoming on the 7th and 8th.

Near the end of the period cold air began flowing into the north-central interior reaching northern portions of Colorado, Kansas, and Missouri on the morning of the 12th. Light to moderate snow was falling at Denver, Colo. and over much of the area between the Great Lakes and the Continental Divide. Also on the morning of the 12th the following stations recorded late-season record low temperatures: Casper and Sheridan, Wyo. 16 degrees and 18 degrees respectively, and Rapid City, N. Dak., 22 degrees.

East of the Mississippi weekly temperature averages ranged from slightly below normal in the south to 8 degrees or 10 degrees above along the Canadian Border. Rainfall which was rather general during the first four days delayed field activities, and maintained excessive soil moisture, particularly in New York and New England and south of the Ohio River. Damaging hail storms occurred in scattered sections along the central Atlantic Coast on the 6th, 7th, and 9th. In Maryland damage due to these storms was estimated at $500,000.

It is significant to note that a hail storm in the lower Sacramento Valley of California on April 29 damaged pears, plums, cherries, and peaches to the extent of $750,000.

On the 11th tornadoes struck San Angelo and Waco, Tex. causing many deaths and injuries and millions of dollars property damage. (Summary Supplied by U. S. Weather Bureau).

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Reports in this issue are for the week ending May 8 unless otherwise designated.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS (Acrididae) - ARIZONA - Melanoplus mexicanus, M. cuneatus and Aulocara elliotti increased to threatening numbers along base of Nantes Mountains on San Carlos Indian Reservation in Graham County. Nymphal populations average 8 to 10 per square yard in a narrow strip 15 miles by one-half to one and one-half miles. Infestations generally non-economic in cultivated areas of Salt River Valley, Maricopa County. Light to severe infestation of M. mexicanus in few alfalfa fields in Laveen and Tempe areas. (T. J. Schmitt).

MORMON CRICKET (Anabrus simplex) - COLORADO - Have hatched; first-and second-instar nymphs in western Moffat County. Population from 6 to 100 per square yard. A few bands from 500 to 1000 per square yard. Very little migration, mostly confined to hatching grounds. Estimated 15,000 to 20,000 acres infested. (Bakke and Mickle). CALIFORNIA - Infested areas exist east of Peavine, Sierra County, and in Madeline Plains area and Long Valley in Lassen County. Populations of more than 100 per square yard during April. Some migration observed. Bait was used. (Coop. Insect Pest Rept.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MARYLAND - Moth emergence noted May 1 in Wicomico County. Pupation in stalks well along. (T. L. Bissell). ILLINOIS - Twenty percent pupation at Anna May 9; first pupation observed at Mount Vernon May 11. (G. C. Decker).

SEED-CORN MAGGOT (Hylemya cilicrura) - KANSAS - Considerable damage to recently planted corn in Crawford County. Replanting necessary in some fields. (R. C. Smith).

FALL ARMYWORM (Laphygma frugiperda) - SOUTH CAROLINA - Damaging buds of occasional sweet corn plants in Charleston area. (W. J. Reid).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - OKLAHOMA - Hibernated commonly in sorghum during past winter. Prepupae found May 7 in north central area. (D. E. Howell).

SOUTHERN CORN STALK BORER (Diatrea crambidoides) - MARYLAND - Borers common in old stalks in Charles County. (T. L. Bissell).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE - Active on corn at Georgetown. (Late News).

A BILLBUG (Calendra sp.) - GEORGIA - Adults destroyed a stand of young corn on 50-75 acres in Toombs County. (L. C. Greene).

PEA APHID (Macrosiphum pisi) - DELAWARE - Serious on alfalfa over large area. (Late News). NEW JERSEY - Population quite low. During first half of April a hymenopterous parasite reduced population markedly, but again building up. Twenty-five to 50 aphids per sweep in many fields; 300-400 per sweep in a few fields. (O. Starnes). ILLINOIS - Fungus attack heavy week of May 4. Many plants covered with dead aphids. (G. C. Decker). WISCONSIN - Unusually abundant and developing very rapidly on alfalfa in Grant County; probably abundant throughout southern part of State. (E. L. Chambers). LOUISIANA - Infestation light and general throughout northwest section of State; heavy near Midin. (L. D. Newsom). MISSOURI - Infestation very spotted. Damage not severe, parasities and predators increasing. (Kyd, Haseman, Thomas). KANSAS - Fairly plentiful on red clover and alfalfa but no noticeable injury. (R. C. Smith). IDAHO - Found in 4 of 6 alfalfa fields examined in Moscow area. Populations range from 0 to 12 per 100 sweeps. (R. Schopp). WASHINGTON - Populations in Snake River Canyon alfalfa have increased to 402 aphids per 100 sweeps. Light infestation in most fields surveyed in Palouse area. (R. Schopp, May 1). Population on alfalfa becoming greatly reduced in Walla Walla area and migration continues. (W. C. Cook). UTAH - Causing serious damage to a few fields of alfalfa in Tooele and Millard and other counties. (G. F. Knowlton). ARIZONA - Found generally in all alfalfa hay fields in Yuma area, but not at economic levels. (D. M. Tuttle).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Damage to clover in San Diego County during April reported slight. (Coop. Ins. Pest Rept.).

APHIDS (*Aphidae*) - MASSACHUSETTS - Plentiful on alfalfa in Connecticut Valley region. (A. I. Bourne). PENNSYLVANIA - Apple grain aphid (*Rhopalosiphum prunifoliae*) and English grain aphid (*Macrosiphum granarium*) heavy in spotted areas on grass in Fulton County. English grain aphid severe on wheat in Fulton County. (E. J. Udine); abundant in southeastern areas. (H. Menusan). TEXAS - Heavy on grain sorghum in Falls County area. (R. Marshall). Greenbug (*Toxoptera graminum*) light on wheat in Panhandle. (N. E. Daniels). KANSAS - Greenbug very scarce on wheat. English grain aphid occurring in most fields. Lady beetles abundant. (R. C. Smith).

ALFALFA WEEVIL (*Hypera postica*)-NEW JERSEY - Survey indicates population greater in infested areas than expected. Average of 1 to 2 larvae per sweep. All stages (adults, apparently newly-emerged adults, eggs and larvae in all stages) can be found. Infestation appears quite general throughout the Atlantic, Salem, Cumberland, Cape May and Gloucester County area. (O. Starnes). DELAWARE - Damage ranges from light at most places to severe in some areas. (Late News). MARYLAND - Larvae collected in Baltimore County April 30 began pupating May 4. (T. L. Bissell). Weevil found near Plum Point, Calvert County. (J. Fales). UTAH - A few larvae in Salt Lake, Juab and Millard Counties. (G. F. Knowlton).

CLOVER LEAF WEEVIL (*Hypera punctata*) - DELAWARE - Injurious throughout State. (Late News). PENNSYLVANIA - Occurring in Potter County. (L. E. Adams). MICHIGAN - Numerous in fields at Monroe, Concord, Grand Haven. (R. Hutson). ILLINOIS - Heavy fungus attack during week of May 4. (G. C. Decker). MISSOURI - Ranging up to 28 per plant in clovers and alfalfa in northern areas. Some red and Ladino clovers being killed. (Kyd, Haseman, Thomas). KANSAS - Abundant in red clover fields examined in northeast area and in alfalfa fields in central areas. (R. C. Smith). CALIFORNIA - Moderate infestation in alfalfa reported from Siskiyou County during April. (Coop. Insect Pest Rept.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - DELAWARE - Destroyed 70-80 percent of early-blossom buds of clover near Milton. (Late News). PENNSYLVANIA - Noted in Potter County. (L. E. Adams).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - DELAWARE - Occurring as far north as Dover. (Late News). KANSAS - Readily found in sweetclover. (R. C. Smith).

MEADOW SPITTLEBUG (Philaneus leucophthalmus) - DELAWARE - Very abundant on red clover at all points, generally much less prevalent on alfalfa. (Late News). PENNSYLVANIA - Hatching in Potter County. (L. E. Adams).

SPITTLEBUG (Cercopidae) - MASSACHUSETTS - None found in alfalfa in Connecticut Valley region. (A. I. Bourne). MARYLAND - Abundant in tops of alfalfa and clover in several counties. (T. L. Bissell). NEW JERSEY - Population, in general, lowest observed in several years. (O. Starnes).

THRIPS - TEXAS - Medium to heavy on legumes in Collin County. (A. S. Milikien).

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Moths heavy at lights at Newark, May 3-6. (Late News). GEORGIA - Heavy infestation in rye in Jenkins County, April 30. (C. R. Jordan). ILLINOIS - Second-instar larvae abundant on rye and wheat May 11 in southern tip of State. (G. C. Decker). OKLAHOMA - Damaging rank wheat in Bryan County. Larvae half grown. (D. E. Howell). TEXAS - Very heavy infestation in dense growths on bottomlands. Parasite Apanteles militaris is becoming quite abundant in some fields and may be controlling factor. Infestation on small grains, alfalfa and vetch in north central area. (H. L. Chada). Medium on small grains and alfalfa in Denton County. (A. Petty). MISSOURI - Infestation in pasture in Stoddard County; larvae small, damage light. (Kyd, Haseman, Thomas).

LEAFHOPPERS - MISSOURI - Building up in southern area legumes and small grain. Damage not yet serious. (Kyd, Haseman, Thomas). KANSAS - Plentiful in wheat and oats. One or more species of Deltocephalus predominate. (R. C. Smith).

TARNISHED PLANT BUG (Lygus lineolaris) - MASSACHUSETTS - Moderate numbers on alfalfa in Connecticut Valley region. (A. I. Bourne). LOUISIANA - Heavy infestation on crimson clover general throughout northwestern area. (L. D. Newsom).

VARIEGATED CUTWORM (*Peridroma margaritosa*) - OKLAHOMA - Severe damage to alfalfa in southern area. (D. E. Howell). LOUISIANA - Heavy in Webster Parish; 12 per square foot on crimson clover. (C. E. Smith).

LYGUS BUGS (*Lygus* spp.) - UTAH - Moderate on alfalfa; very numerous on mustards in Millard County. (G. F. Knowlton).

CUTWORMS (Phalaenidae) - WISCONSIN - Heavy infestation on farm in Bayfield County. (E. L. Chambers). TEXAS - Alfalfa in bottomlands heavily infested. Second growth in Sherman area severely damaged. Heavy infestation in dense growth of small grains. (H. L. Chada). Severe infestation on all crops, especially in alfalfa and clover in Collin County. (A. S. Milikien). UTAH - Delayed growth in some alfalfa at Sutherland, causing substantial damage. (G. F. Knowlton).

CLOVER MITE (*Bryobia praetiosa*) - OHIO - Unusually abundant on native grasses and clover in some areas. Unusually large number of complaints of annoyance around homes in the Akron, Canton and Wooster areas. (R. W. Rings).

BROWN WHEAT MITE (*Petrobia latens*) - TEXAS - Light to medium on wheat in Panhandle area. (N. E. Daniels). KANSAS - Relatively large numbers in individual wheat fields in northwest counties. Yellowing of foliage severe in a few fields in Ellis and Sheridan Counties. Another species of mite also observed. (R. C. Smith). COLORADO - Reported serious in Adams County; as many as 200 per plant. Heavily infested fields show yellow cast. (L. B. Daniels).

HESSIAN FLY (*Phytophaga destructor*) - KANSAS - Some egg-laying on wheat recently in northwest areas. (R. C. Smith). GEORGIA - Light infestation on wheat in Jefferson County. (C. R. Jordan).

RICE STALK BORER (*Chilo plejadellus*) - LOUISIANA - Wheat in heading stage infested by larvae in Oberlin area. (County Agt., Allen Parish).

SUGARCANE BEETLE (*Euetheola rugiceps*) - LOUISIANA - Infestation very severe, destroying stands of sugarcane in St. James Parish. (K. L. Cockerham). Severe infestation on corn in St. Landry Parish (E. H. Floyd).

EUROPEAN WHEAT STEM SAWFLY (Cephus pygmaeus) - PENNSYLVANIA - Adults in Fulton County-a very early record. (E. J. Udine).

A NITIDULID (Meligethes seminulum) - OREGON - First emergence noted April 3, compared with March 28 last year. This insect is considered a serious pest in Western Oregon. Although originally described from Oregon in 1860, it did not appear in economic numbers until the late 1930's. The July-brood of adults attacks the seed crop of red, Ladino and alsike clovers. The insect has been extremely difficult to control. Damage caused by adults on all crops has not been established, but it is though to be a pest on green beans and possibly other vegetables. According to available records, this species has not been recorded as a pest outside of Oregon. (E. A. Dickason).

FRUIT INSECTS

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - Adults appearing in central and southern orchards. Feeding and egg-laying punctures found on peaches in Gloucester County, May 5. More abundant on trees adjoining hibernation quarters. (A. J. Farley). DELAWARE - Active. (Late News). MARYLAND - Population light at Hancock. (C. Graham). PENNSYLVANIA - Small numbers in southeastern area. (H. Menusan). OHIO - Adults began leaving overwintering sites at Wooster May 2. Jarred from peaches at Wooster, May 8. (R. W. Rings). INDIANA - Activity continues light on peaches in Vincennes area. (D. W. Hamilton). Very light in Lawrence and Orange Counties. (G. E. Marshall). Activity increasing in western KENTUCKY and southern ILLINOIS. (Spray Serv. Rept.). ILLINOIS - First larvae found in peach in Pulaski County. (S. C. Chandler). NEW YORK - Began emerging from hibernation in Geneva area May 8, relatively abundant by May 11. (N. Y. State Col. of Agr.).

APPLE CURCULIO (Tachypterellus quadrigibbus) - PENNSYLVANIA - Small numbers in southeastern area. (H. Menusan).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MARYLAND - Hatching rapidly at Hancock and becoming established in leaves. (C. Graham). MICHIGAN - A few egg masses in orchards about Paw Paw April 30. (R. Hutson). INDIANA - Hatch probably complete May 5 in Vincennes area. (D. W. Hamilton). NEW YORK - Moth activity and egg laying continues in several areas. (N. Y. State Col. Agr.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW YORK - First adults seen May 4 at Wappingers Falls and Middle Hope. (R. W. Dean). Egg punctures and adults at Fish Kill, Dutchess County, May 6. (D. D. Sergeant).

CODLING MOTH (Carpocapsa pomonella) - MARYLAND - First moths in cages at Hancock May 6; also emergence in orchard. (C. Graham). OHIO - First moths emerged May 6 in eastern area. (C. R. Cutright). KENTUCKY - First moth in western area May 1, now general from Bowling Green to Fulton. (Spray Serv. Rept.). WASHINGTON - First moths taken in baits in Yakima Valley May 3. (E. J. Newcomer). NEW YORK - Pupating in Saratoga County. (F. F. Corey).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First-and second-instar nymphs numerous in untreated orchards in Yakima Valley. (E. J. Newcomer). NEW YORK - Hatching in Oswego County, May 8. (A. H. Lum).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adults active April 28, May 1, 2, 3 in Vincennes area. (D. W. Hamilton).

APHIDS ON APPLE - PENNSYLVANIA - Rosy apple aphid (Anuraphis roseus) hatching in Potter County. (L. E. Adams). OHIO - Beginning infestations of rosy apple aphid found in practically all untreated orchards in eastern area. (C. R. Cutright). MICHIGAN - Rosy apple aphid and apple grain aphid (Rhopalosiphum prunifoliae) much more numerous in southwestern area orchards April 25 than May 6. (R. Hutson). Reported increasing in southern ILLINOIS and INDIANA areas. (Spray Serv. Rept.). NEW YORK - Rosy apple aphid scarce in Orleans County. (A. G. West).

MEALY PLUM APHID (Hyalopterous arundinis) - CALIFORNIA - Medium to heavy infestations general in plum orchards in Placer County. (Coop. Ins. Pest Rept.).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Developing wings in Yakima Valley (E. J. Newcomer); causing some damage in Wenatchee area. (E. W. Anthon).

TWO-SPOTTED SPIDER MITE (Tetranychus bimaculatus) - MASSACHUSETTS - Active in orchards and many eggs on ground cover. Many Stethorus beetles in colonies. (W. H. Wheeler, April 28).

SPIDER MITES (*Tetranychus pacificus* or *T. mcdanieli*) - WASHINGTON - Overwintering mites began ovipositing on apple trees in Yakima Valley about May 1; eggs hatching May 6. (E. J. Newcomer).

EUROPEAN RED MITE (*Metatetranychus ulmi*) - NEW JERSEY - Control continues a problem in some orchards. (A. J. Farley). NEW YORK - Prevalent in untreated orchards in Rockland County; first leaves browning. (W. J. Clark). Heavy in a few Saratoga County orchards. (F. P. Corey). Hatching in Onondaga County, May 6. (F. J. Vuillemot). OHIO - Hatching of overwintering eggs practically complete May 8. (C. R. Cutright). INDIANA - Early development seems to have slowed in Vincennes area on account of weather. (D. W. Hamilton). Threatens to become a problem earlier than in 1952 in Lawrence and Orange Counties. (G. E. Marshall).

GRAPE LEAFHOPPERS - ARIZONA - A few infestations of *Erythroneura comes* in residental areas of Phoenix. (J. F. Brantlinger). Nymphs of *E. variabilis* and *Dikrella cockerelli* beginning to appear in grapes in Phoenix area. Hatch appears relatively light. (L. Hopkins).

GRAPE FLEA BEETLE (*Altica chalybea*) - NEW YORK - Infestation general in Chautauqua County but seriousness localized. (T. D. Jordan). PENNSYLVANIA - Extremely heavy in 15-mile area around Fairview, Erie County. Ninety-five percent of buds injured. Light infestation near North East. (L. E. Adams). MISSISSIPPI - Damage in an extensive area around Meridian reported by N. H. Loomis. Serious on both muscadines and bunch grapes. (B. A. Porter).

A FALSE CHINCH BUG (*Nysius* sp.) - ARIZONA - Very abundant in one vineyard in Phoenix area; some killing of canes and leaves. (M. Hopkins).

A PEACH LEAF MINER (*Phytomyza* sp.) - OHIO - Adults, emerging from overwintering puparia, first collected April 30 in Erie County. (A. C. Dowdy).

CALICO SCALE (*Lecanium cerasorum*) - CALIFORNIA - Moderate to serious infestations in walnut groves in Santa Clara County during April. (Coop. Ins. Pest Rept.).

SAN JOSE SCALE (Aspidiotus perniciosus) - WISCONSIN - Very light winter mortality; insect increasing again, although has not been found in any commercial orchard areas. . (E. L. Chambers).

SPRING CANKERWORM (Paleacrita vernata) - NEW JERSEY - Feeding for two weeks or more in some central and southern orchards. Not a serious problem in sprayed orchards. (A. J. Farley). PENNSYLVANIA - Very heavy infestation in southeastern area, causing some injury in sprayed orchards, defoliating unsprayed orchards. (H. Menusan). Very light damage in Snyder County. (S. G. Gesell).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Numerous on cherry buds and strawberries at Lexington, April 30. (R. Hutson). WASHINGTON - Becoming abundant in peach orchards in Wenatchee area. (E. W. Anthon).

STINK BUGS (Pentatomidae) - Populations increasing in western KENTUCKY and southern ILLINOIS. (Spray Serv. Rept.).

APHIDS (prob. Aphis spiraecola and A. gossypii) - CALIFORNIA - Treatment necessary unusually early in Los Angeles County citrus but general infestation not heavy as expected due to biological control. Heavy infestations, also during April, in Orange County; light to very serious in Riverside County. (Coop. Ins. Pest Rept.).

CALIFORNIA TENT CATERPILLAR (Malacosoma californicum) - CALIFORNIA - Medium infestation on apples in Marin and Sonoma Counties during April. Light to moderate in stone fruit orchards in Santa Cruz County. (Coop. Ins. Pest Rept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Webs in wild cherry in southern area despite very late spring and delayed new growth. (E. L. Chambers).

PERIODICAL CICADA (Magicicada septendecim) - VIRGINIA - An adult found May 6 in Arlington, (L. M. Russell); in Fairfax County May 12. (H. G. Cushman). MARYLAND - Adult observed May 10 in Takoma Park (H. Baker).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - CALIFORNIA - Extensive infestations on potatoes in Riverside County during April. (Coop. Ins. Pest Rept.).

IRIS WHITEFLY (Aleyrodes spiraeoides) - WASHINGTON - Eggs earlier than usual on potatoes at Yakima. (B. J. Landis).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Colonies being established on potatoes at Yakima. (B. J. Landis).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE-Adults numerous in southern Sussex County. (Late News). MARYLAND - Active on both tomatoes and potatoes in Worcester County on Eastern Shore. (T. L. Bissell, May 12). TENNESSEE - Beginning to show up in potato plantings. (R. P. Mullett).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Prevalent on potatoes in Dover, Smyrna and Georgetown areas. (Late News). PENNSYLVANIA - Emering in southeastern area. (H. Menusan).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - WASHINGTON - Leaf injury to potatoes from adults less than for several years in Yakima area. (E. W. Davis).

BLISTER BEETLES (Epicauta spp.) - GEORGIA - Heavy infestation on Irish potatoes in Taylor County, May 2. (C. R. Jordan).

TUBER FLEA BEETLE (Epitrix tuberis) - WASHINGTON - Began emerging at Yakima May 6. (E. W. Davis).

FLEA BEETLES - KANSAS - Injury to early garden plants. (R. C. Smith). MARYLAND - Attacking tomatoes and potatoes in Worcester County. (T. L. Bissell, May 12). NEW YORK - Infesting tomatoes in Rockland County. (W. J. Clark).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Small colonies on potatoes. (Late News).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - DELAWARE - Infesting potatoes in Dover, Smyrna and Georgetown areas. (Late News).

ASPARAGUS BEETLES (*Crioceris* spp.) - DELAWARE - Asparagus beetle feeding and laying eggs at Smyrna. (Late News). WASHINGTON - Asparagus beetle eggs seasonally abundant on asparagus near Sunnyside. (B. J. Landis).

APHIDS - SOUTH CAROLINA - Populations have increased considerably in some potato plantings in Charleston area, light infestations on tomatoes. (W. J. Reid). WASHINGTON - Infesting cultivated roses and Norway maples at Yakima. (B. J. Landis).

IMPORTED CABBAGEWORM (*Pieris rapae*) - MICHIGAN - Adults at East Lansing May 1. (R. Hutson).

CABBAGE MAGGOT (*Hylemya brassicae*) - PENNSYLVANIA - Eggs in Wilkes-Barre area, but no maggots, May 6, Deposition apparently less than last year. (S. G. Gesell). MICHIGAN - Mating at Bath, May 5. (R. Hutson).

ONION MAGGOT (*Hylemya antiqua*) - NEW YORK - Adults prevalent on muck in Orleans County, May 7. (H. A. Smith).

THRIPS - SOUTH CAROLINA - Slight injury on young watermelon plants in Charleston area, moderately abundant in flowers of beans and tomatoes. (W. J. Reid).

BEET WEBWORM (*Loxostege sticticalis*) - UTAH - Moths observed at Sutherland, Delta and Deseret. (G. F. Knowlton).

BEET LEAFHOPPER (*Circulifer tenellus*) - UTAH - A few in beet areas at Delta, though beets not up yet. (G. F. Knowlton).

STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) - KANSAS - Adults first seen April 21 at Wathena. (R. C. Smith).

First THRIPS and APHIDS noted feeding on strawberries in Lawrence and Orange Counties May 5. (G. E. Marshall).

SPITTLEBUG (Cercopidae) - MARYLAND - Infesting strawberries at Salisbury and in Baltimore County. (J. Kantzes).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Heavy on strawberries at Salisbury. (J. Kantzes).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - IDAHO - Heavy infestations reported from Troy in commercial plantings of strawberries. Fifty to 70 percent of stand destroyed. (H. C. Manis).

A CYNIPID ON RASPBERRY - WISCONSIN - A gall insect, closely related to Bassetts blackberry gall insect, found infesting a large percentage of canes in a planting of red raspberries in Door County. According to available records, this is first report of this type infestation in the State. (E. L. Chambers).

TOBACCO HORNWORM (Protoparce sexta) - SOUTH CAROLINA - First adult (male) of season in Charleston area taken in light trap May 5, which was same date first adult taken in 1952. (W. J. Reid). FLORIDA - Very few moths taken in light trap on May 6. (L. M. May).

TOBACCO BUDWORMS (Prin. H. virescens) - FLORIDA - Activity light in shade-grown tobacco in Gadsden County area. (L. M. May).

GREEN PEACH APHID ON TOBACCO - FLORIDA - Heavy increase in populations continues on experimental tobacco at Quincy. (L. M. May).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - TENNESSEE - Larvae attacking tobacco in tobacco-growing sections of middle and east Tennessee. (R. P. Mullett).

PEA APHID (Macrosiphum pisi) - MARYLAND - Eastern Shore pea fields generally infested; spraying in progress. (T. L. Bissell). CALIFORNIA - Large acreages of peas reported infested in Ventura County during April; smaller acreage in Orange County. (Coop. Ins. Pest Rept.). WASHINGTON - Populations in early peas in Walla Walla area average around 1 per sweep. Many small nymphs and few apterous mothers observed. (W. C. Cook, May 6).

MAGGOTS ON BEAN SEED - MARYLAND - Severe in some fields in Wicomico County. (T. L. Bissell).

BEAN LEAF BEETLES (*Cerotoma trifurcata*) - MARYLAND - Infestations rather severe in some Eastern Shore bean fields. (T. L. Bissell, May 12). VIRGINIA - Light numbers appearing in beans in Norfolk area and causing noticeable injury in parts of a field. (Brubaker, Greenwood, Hofmaster).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - A few on beans in Wicomico County. (T. L. Bissell). VIRGINIA - Began appearing in light numbers during week of May 9 in Norfolk area. (Brubaker, Greenwood, Hofmaster). SOUTH CAROLINA - Damage negligible in Charleston area. (W. J. Reid).

STRIPED CUCUMBER BEETLE (*Acalymma vittata*) - MARYLAND - Infesting cucurbits on Eastern Shore; growers already dusting. (T. L. Bissell).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - TEXAS - Growers having to replant watermelons in Wood County. (S. A. Spacek).

AN APHID (*Macrosiphum barri*) - ARIZONA - Very abundant on lettuce in some fields in Tempe area. This species has replacedMyzus persicae which was most abundant species earlier. (L. Hopkins).

ROSE APHID (*Macrosiphum rosae*) - CALIFORNIA - Heavy on 275 acres of roses in Stanislaus County during April. (Coop. Ins. Pest Rept.).

ORANGE TORTRIX (*Argyrotaenia citrana*) - OREGON - Infesting camellia buds at Portland and Salem. Larvae in 35 percent of buds of infested plants in February. Adults emerged April 15. (F. F. Larson).

CORRECTION: CORN SILK FLY was incorrectly shown (see CEIR, Vol. 3, No. 17, p. 291) as infesting peppers in Hidalgo County, Texas; this insect was observed on corn. Also, LEAF MINERS (p. 289), shown as attacking corn in Hidalgo County, should have been recorded as infesting pepper.

Spring Survey of Aphid Eggs in Maine

A cooperative survey was conducted in northeastern Maine April 7 to 9, 1953, to determine the abundance of fully distended aphid eggs on the more important primary hosts of 3 species of potato-infesting aphids (see table).

Primary host:	Prunus nigra	Rhamnus alnifolia	Rosa palustris	
	Buds	Buds	Buds	Crotches
Number of Stations Sampled				
Spring, 1951	24	8	10	10
Spring, 1952	24	8	11	11
Spring, 1953	24	8	11	11
Fall, 1952	24	8	11	11
Percent of Stations having Fully Distended Aphid Eggs				
Spring, 1951	50	88	60	70
Spring, 1952	13	75	36	45
Spring, 1953	54	88	73	73
Fall, 1952	63	100	73	73
Average No. of Fully Distended Eggs per 100 Units of Sample at Infested Stations.				
Spring, 1951	.33	24.63	3.21	5.82
Spring, 1952	.21	.97	.74	.89
Spring, 1953	.98	30.93	3.70	3.06
Fall, 1952	.50	86.55	8.19	6.94
10-Year Spring Average (1943-1952)	.40	7.16	4.81*	5.82

*9-Year Average

BUCKTHORN APHID (Aphis abbreviata) eggs on alder buckthorn (Rhamnus alnifolia) were found at 7 of the 8 sampling stations. The egg populations had dropped 69 percent since the 1952 fall count. An increase was recorded at only one station. Overall egg abundance now is larger than at the same time during either of the preceding 2 years, and much larger than the 10 year average for this time of year. Present abundance is due largely to unusually large numbers in the Bridgewater, Mars Hill, and Presque Isle districts.

Aphid eggs on Canada plum (Prunus nigra) - the most important primary host of the GREEN PEACH APHID (Myzus persicae) - are now considerably more abundant than usual for this time of year, and about twice as abundant as during the 1952 fall survey. The latter was due largely to a winter increase recorded at one station. This increase probably resulted from egg deposition occurring after the time of the fall survey. The usual winter reduction in abundance of fully distended eggs was recorded at most of the stations. Observations and counts of aphids on Canada plum in the fall of 1952 indicated that a very small percentage of the eggs were deposited by the green peach aphid.

Aphid egg abundance on swamp rose (Rosa palustris) - the most important primary host of the POTATO APHID (Macrosiphum solanifolii) are now only slightly more abundant than usual for this time of year but much more so than at the same time in 1952. While the usual winter reduction in egg abundance was recorded at most of the stations there was evidence that some deposition probably occurred at some of the stations before the on-set of winter following the 1952 fall counts. Evidence indicated that an unusually large percentage of the eggs on swamp rose were deposited by the potato aphid.

A first instar aphid nymph was observed on swamp rose near Ashland on April 8. This is about 2 to 3 weeks earlier than usual. (Shands and Wave, BEPQ; Simpson, Maine Agr. Exp. Sta.).

FOREST INSECTS

GYPSY MOTH (Porthetria dispar) - First record of hatching this spring reported in town of Hancock, Berkshire County, Massachusetts, April 23. This egg cluster was located in a well-protected valley where hatching could be expected earlier. Hatching occurring in woodland area in Greenfield, Massachusetts, April 29 with evidence that hatch had been occurring a day or two prior to this date. Newly-hatched larvae quite abundant in protected areas in Connecticut River Valley, May 5. It is anticipated that general hatching will occur throughout the infested territory within the next 10 days. (H. L. Blaisdell, May 6). Hatching well underway in sections of central and western Massachusetts. (Crop Pest Control Mess.). Hatching in Russell, Massachusetts, April 29. Very heavy egg infestation reported at this location with only small amount of clusters hatching on this date. (A. I. Bourne). First hatching at Middletown, Connecticut May 1. (J. S. Stockbridge).

The 1953 overall gypsy moth control program provides for spraying, mostly by aircraft, of over 175,200 acres infested by this pest. Approximately two-thirds (more than 116,200 acres) of the area to be treated is located in New York. A total of 1,100 acres will be sprayed in Penn.; approximately 19,600 acres in Vermont; 24,000 acres in Massachusetts; 10,800 acres in Connecticut; and 3,500 acres in Maine. (J. M. Corliss).

ALDER FLEA BEETLE (Altica ambiens) - WASHINGTON - Emerged hibernating adults collected from terminals of pines on Colville National Forest. (J. C. Evenden, May 2).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - PENNSYLVANIA - Generally abundant on ornamentals throughout the State. (J. O. Pepper).

PINE NEEDLE SCALE (Phenacapsis pinifoliae) - PENNSYLVANIA - Rather general in Carbon and Monroe Counties. Many parasitized. (H. Menusan).

A FLATHEADED BORER (Buprestidae) - ARIZONA - Some damage to poplar trees in Phoenix vicinity. (J. F. Brantlinger).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - IDAHO - Has caused death to less vigorous branches and twigs of Crataegus sp. in Coeur d'Alene. Populations numerous during April. (A. L. Gibson).

CALIFORNIA TORTOISE SHELL (Nymphalis californica) - CALIFORNIA - Adult populations unusually early and large during April in Humboldt County. (Coop. Ins. Pest Rept.).

EASTERN SPRUCE GALL APHID (Chermes abietis) - OHIO - Females laying eggs in considerable numbers on Norway spruce in Wayne County, May 6. Galls more abundant than usual during 1952. (R. B. Neiswander).

A TWIG BORER (Petrova virginiana) - OHIO - General infestation on Pinus virginiana in Hocking, Athens and Vinton Counties. In Waterloo State Forest (Athens County) 38 percent of younger trees found infested on May 1, there being from 1 to 3 twigs per tree infested with the brood emerging in 1953. (W. E. Miller).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WISCONSIN - Observations indicate that eggs began hatching in Douglas County May 6. Heavy infestations expected only in Douglas and Bayfield Counties although insect is spreading. (E. L. Chambers).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Although development of Tamarack needles delayed, mining already beginning. Infestation expected to cover State as in 1952. (E. L. Chambers).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - KANSAS - This insect has been collected from the following localities: Kansas City, Fort Scott, Parsons, Baxter Springs, Arkansas City and Newton. (R. E. Beer).

FIR ENGRAVER (Scolytus ventralis) - NEW MEXICO - Rate of tree-killing in white fir stands on east slope of Sandia Mountains in Bernalillo County found to be increasing. Tree mortality has reached a maximum of 80% in isolated canyons on the west slope. A control project was initiated by U. S. Forest Service in early April to protect heavily used recreational areas totaling 2,000 acres. (J. W. Bongberg).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragilis) - NEW MEXICO - Heavy egg parasitism by unidentified hymenopterous parasite was noted in egg masses collected near Taos, Taos County, during October, 1952. Emergence of the parasites began in mid-April from egg masses which were kept at room temperature during the winter. No tent caterpillar eggs have hatched as of May 8. Heavy tent caterpillar populations in aspen stands throughout northern New Mexico have caused severe defoliation for the past several years. (J. W. Bongberg).

SPRUCE BUDWORM (Choristroneura fumiferana) - NEW MEXICO - A heavy infestation has caused severe defoliation to approximately 3,500 acres of spruce-fir forest on north slopes of Mt. Taylor, McKinley County, during past three years. Control of this outbreak by means of aerial spray operations will be attempted during mid-June. (J. W. Bongberg).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Continue to emerge in comparatively large numbers from cages at Waco and College Station. Emergence at Waco through May 8 has been exceeded during only five of the 15 years that such records have been made. Years with greater emergence were 1941, 1944, 1945, 1950 and 1952, with only 1941 appreciably greater. Field inspections showed an average of 105 overwintered boll weevils per acre in Colorado and Austin Counties, 45 per acre in Dewitt County, and 30 in Fayette County. Infestations in Lower Valley continue light. Inspection in limited number of fields in Live Oak, Atascosa, Starr, Kleberg, Nueces, Jim Wells, Refugio and San Patricio Counties show average infestation of 0 to 5 percent punctured squares. (Parencia et al). SOUTH CAROLINA - One hundred fifty-five live boll weevils removed from 10 hibernation cages at Florence during week ending May 9 as compared to 33 for previous week and 60 for same week of 1952. No weevils have been found in 1/5-acres trap plot of cotton. Also, no weevils found in several fields examined during week. (Fife and Jernigan).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Bloom inspection in four Valley counties through May 8, 1953, shows 2,113,608 blooms inspected and 4,425 worms found for .2% infestation. In 1952 on same date 373,579 blooms had been inspected and 12,366 worms found for 3% infestation. More inspection has already been done than was done all of last season. First results from Brooks, Duval, Jim Wells, Kleberg, San Patricio Counties show a heavier infestation than last year with bloom inspection in that area about 2 weeks ahead of last year. In 1952 as of May 8 there was a 3% infestation while this year on same date infestation is 8%. (H. E. Welker).

THRIPS - CALIFORNIA - Extensive infestations on cotton in Riverside County during April. (Coop. Ins. Pest Rept.). TEXAS - Injurious infestations continue in most late-planted fields in Jim Wells, Nueces and San Patricio Counties. Damaging infestations in 53 percent of untreated fields inspected in upper coastal area. Infestations increasing in south central and central areas with injurious infestations in occasional fields. (Parencia et al). SOUTH CAROLINA - No injury noted in Florence areas. (Fife and Jernigan).

APHIDS ON COTTON - TEXAS - Attacking young cotton in the Hunt-Kaufman County area. (C. F. Garner). Infestations decreased in coastal bend area but injurious infestations continue in some fields in Nueces County. Medium to heavy infestations in 15 percent of fields inspected in upper coastal area with most of the infestations in Calhoun, Victoria, Jackson, Fort Bend and Matagorda Counties. Infestations heavy on seedling cotton in Rockwall, Hunt and Kaufman Counties. Injurious infestations in occasional fields in McLennan County. (Parencia et al). SOUTH CAROLINA - No injury noted in Florence area. (Fife and Jernigan).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations continue light in Lower Valley, but have increased over last week in all areas as far north as south central area. Migration from horsemint is occurring in these areas. Twenty-six untreated fields inspected in the southwest area averaged 14 fleahoppers per 100 terminals which is double the infestation of last week. This compares with 4 per 100 terminals in treated fields. Infestations warrant control in Live Oak, Atascosa, LaSalle and Frio Counties. Occasional fields need control in Jim Wells, Bee and Matagorda Counties. (Parencia et al).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - LOUISIANA - Damaging young cotton in Franklin Parish. (G. Luno).

TOBACCO THRIPS (*Frankliniella fusca*) - LOUISIANA - None on cotton. Populations on legumes lowest observed since records started in 1947. (L. D. Newsom, May 5).

CUTWORMS (Phalaenidae) - TEXAS - Damage to cotton in central area decreased but injury expected to occur in some recently-planted fields. (Parencia *et al*).

SPIDER MITES - TEXAS - Infestations found in 14 of 37 fields inspected in Fort Bend County; medium to heavy in five fields. Light in occasional fields in Matagorda and Calhoun Counties. (Parencia *et al*).

LEAF MINERS - TEXAS - Damage to cotton reported from several sections of the Valley during past week. Several fields treated in Pharr area. This pest seems to be in much larger numbers than in past years. (R. D. Griffith).

LEPIDOPTEROUS LARVAE continue a problem on several crops in Tallulah, Louisiana area. (Gaines *et al*).

MAN & ANIMAL INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima v. richteri*) - GEORGIA - Intense infestation at Cordele. (G. H. Culpepper). TEXAS - Found for first time in Gregg County. (G. H. Culpepper).

CATTLE TICK (*Boophilus annulatus*) - TEXAS - One hundred fifty-two cattle from State of Tamaulipas, Mexico, rejected at Brownsville during April because of infestation. Twenty-eight asses, also from same area, rejected at Hidalgo. (H. F. Kern).

SCREW-WORM (*Callitroga hominivorax*) - CALIFORNIA - First screw-worm in Madera County reported April 22. (Coop. Pest Rept.).

HOUSE FLY (*Musca domestica*) - PENNSYLVANIA - Abundant in many diary barns. (J. O. Pepper).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations in excess of 1000 per animal common in most of southern Oklahoma. (D. E. Howell).'

Populations of HORN FLY and HOUSE FLY increasing in Quincy, Florida area. (F. E. Guthrie).

ADDITIONAL NOTES

MARYLAND - Small ARMYWORMS found in grain fields in Worcester and Wicomico Counties. Seem to be feeding more on young clover planted with grain. Also found on lawn in Wicomico County. Quite a few in grain fields and indications of a build-up. Two small CORN EARWORMS taken in alfalfa and barley in Worcester County. Small numbers of ALFALFA WEEVIL in Worcester County. (T. L. Bissell, May 12). TENNESSEE - Large larvae of ARMYWORMS found in a few grain fields in eastern third of State. A few reports of tobacco beds being destroyed. Light scattered infestations in fescue and rank grain fields in middle Tennessee; larvae small. Present indications that armyworm outbreak will be light this year in a few widely scattered fields. SPITTLEBUGS (species unidentified) have been found for first time, according to available records, in alfalfa in Tennessee. Light infestations, around 10 masses per square yard, observed in Washington and Carter Counties in extreme eastern end of State. Washington county agent reports observing spittlebugs in this county in 1952. SEED-CORN MAGGOT continues serious and widespread over the State particularly in corn and gardens. Considerable acreage of corn stands destroyed in middle Tennessee. A few fields of cotton also infested in middle and west Tennessee. (R. P. Mullett). SOUTH DAKOTA - Additional survey data indicate that European corn borer mortality in southeastern areas averaged 25 percent. In the northeastern counties average winter mortality is 22 percent. (J. A. Lofgren).

WHITE-FRINGED BEETLE

There are two methods by which the presence of white-fringed beetles can be determined: (1) inspections for adult beetles on plants and on the surface of the soil, and (2) inspections of soil samples for larvae. Effective surveys can be made by using one or a combination of these methods depending upon the season of the year. Certain definite procedures must be followed to effectuate a successful white-fringed beetle survey.

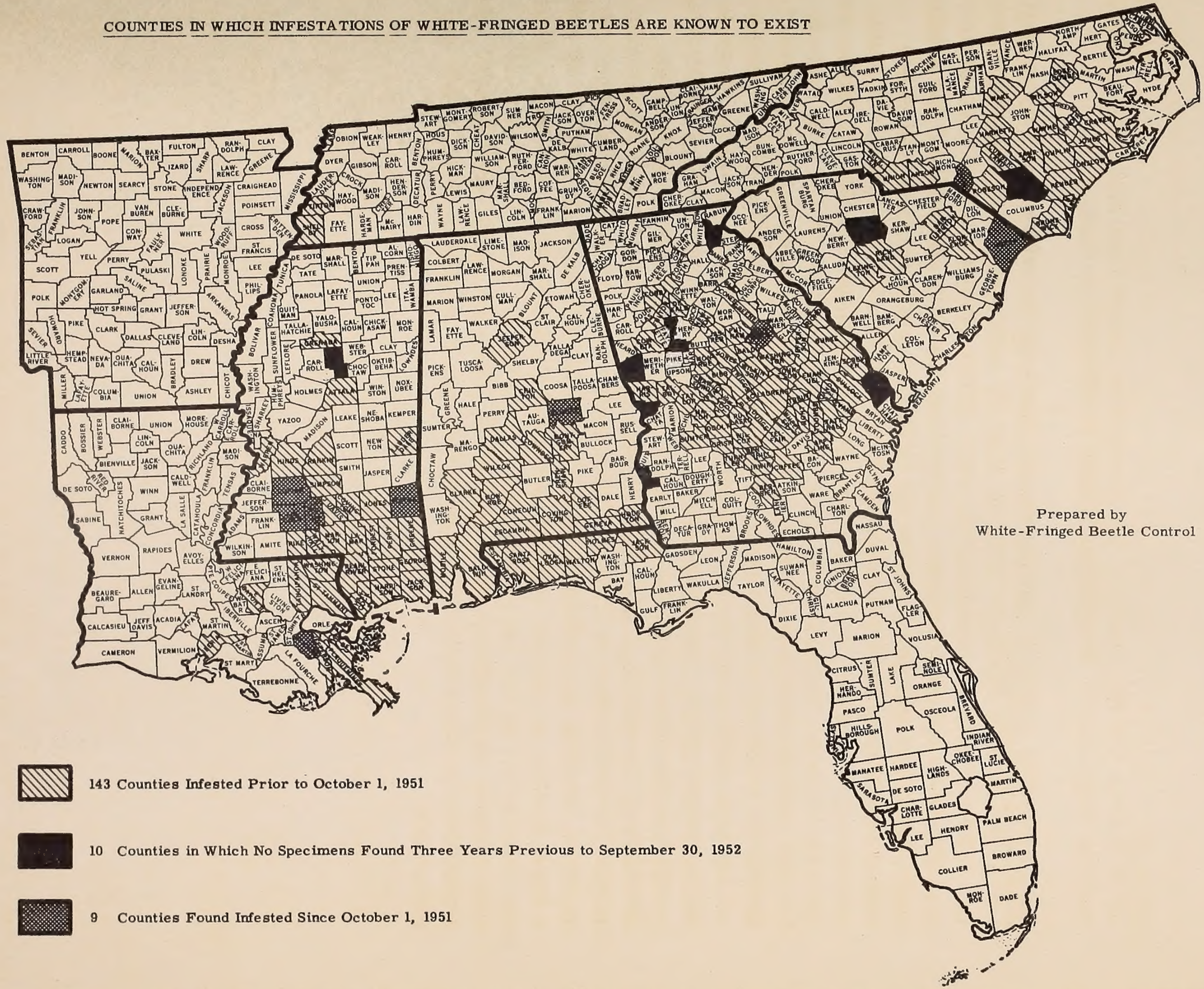
1. Likely Areas of Infestation. These are determined by possible exposure from known beetle-infested areas within the infested states as well as from infested South American countries. They include properties that have been landscaped with nursery stock moved from infested areas, railroad properties when the railroad transverses infested localities, farm crop processing plants, community centers, military installations, and other points where equipment and materials from various parts of the country are assembled, as well as ports where the insect may have been introduced.

2. Favorable Sites. After the area has been determined, it is necessary to select sites within the area to survey. On farms, the inspections are concentrated on cultivated fields, pastures, and fence rows. In residential areas, the inspections are limited to flower beds, undeveloped lots and alleyways. In industrial areas, checks are made in vegetative areas on the property and environs.

Inspection for Adults. Adult inspections may be made from late May to mid-September. The adult beetle shows strong preference for certain broad-leaf food plants such as peanuts, velvetbeans, soybeans, beggarweed, cocklebur, ragweed, blackberry, goldenrod, aster, petunias, zinnias, and chrysanthemums. By restricting the examinations to plants preferred by the beetle, better results may be expected. The finding of the characteristic feeding sign of the adult white-fringed beetle is a big asset in locating infestations. These signs are easily distinguished from injuries caused by most other insects. Search is made for semicircular cuts made in the margin of the leaf. One portion of the injury presents a smooth, slightly curved surface, whereas the other portion presents a serrated or saw-tooth edge. Upon finding characteristic feeding signs, close observation is made on the ground or in debris for the beetle. Its protective coloration and habit of the insect to feign death oftentimes make it difficult to find.

Inspection for Larvae. Larval inspection may be effectively done from early fall to late spring. This is done by selecting soil samples from around the roots of perennial plants. Although the larvae feed on several hundred species of plant, observations have shown that the preferred food plants include practically all field and garden crops and some native vegetation such as dogfennel, polypremum, evening primrose, goldenrod, ragweed, broomsedge, wild geranium, plantain, dock, and various briers. Selective digging and examination of the soil sample for the larvae should be made under preferred food plants in representative portions of the land. In the early spring when plants, both native and cultivated, begin growth, larval inspections can be done by noting plant injury, as several food plants when attacked by white-fringed beetle larvae show certain abnormal symptoms such as yellowing, reddening, or wilting, and dead plants may be observed. These symptoms assist the inspector in further limiting the number of plants to be examined. In this type of inspection the plant is dug up by the roots with a hand trowel or shovel and the soil broken apart and examined. It is not necessary to dig large amounts of earth; the larvae, if present, will usually be found on the roots of the plant or in the soil nearby, and a majority of them will be found in the upper 3 inches of soil. (C. C. Fancher).

COUNTIES IN WHICH INFESTATIONS OF WHITE-FRINGED BEETLES ARE KNOWN TO EXIST



▨ 143 Counties Infested Prior to October 1, 1951

■ 10 Counties in Which No Specimens Found Three Years Previous to September 30, 1952

▩ 9 Counties Found Infested Since October 1, 1951

Prepared by
White-Fringed Beetle Control